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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen M. Fluker

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10/06/2006

LAW OFFICES OF BRIAN S STEINBERGER

101 BREVARD AVENUE

COCOA, FL 32922

EXAMINER

LE, LANA N

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/817,283	FLUKER, STEPHEN M.	
	Examiner	Art Unit	
	Lana N. Le	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/02/04
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 & 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 4, 7, 13, and 26 are objected for the following minor informalities:
 - claim 4 already has the “means for combining” and later states “through a combiner” which is repetitive.
 - claim 7 should be “A method” not “An method”.
 - claim 13, line 3 states “providing a first transmitter”, however, line 5 states “the initial transmitter”. It is assumed to be the same and correction of line 5 to be “the first transmitter” should be made.
 - claim 26, line 4, “a” is needed before “separate”.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 16-18 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 2618

-in claims 16 and 26, "without a reject load" is claimed. However, the specification does not show that the invention does not use a reject load, every Case in the specification utilizes at least one reject load but with no additional reject load needed. Therefore, the "without a reject load" is assumed to be new matter.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4-5, 7-8, 10-11, 13-14, and 16-17, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Kroeger et al (US 6,898,249).

Regarding claim 1, the admitted prior art disclose an efficient method of combining signals from a digital transmitter to produce a combined high definition radio signal, comprising the steps of:

providing a Linear Solid State IBOC transmitter (6; fig. 1 and hereafter) with digital carriers output (IBOC output for IBOC input to hybrid 4);

providing an analog transmitter (2) with an analog output (analog output from 2 for analog input to 4);

combining the digital carriers output of Linear Solid State IBOC transmitter (6) through a combiner (4) with the analog output of the analog transmitter (2) (page 2, lines 1-20). The admitted prior art does not disclose providing the Linear Solid State IBOC transmitter with both digital and analog carriers output and combining the digital and analog carriers output of Linear Solid State IBOC transmitter through a combiner with the analog output of the separate analog transmitter.

Kroeger et al disclose the Linear Solid State IBOC transmitter (102, 106, 108, 120) with both digital (from 112) and analog (from 102) carriers output (output 122 via 120); and combining (via 124) the digital and analog carriers output of Linear Solid State IBOC transmitter (122) through a combiner (124) with the analog output (output 110 via 106, 108) of the separate analog transmitter (col 5, lines 55 – col 6, line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the IBOC transmitter of the admitted prior art be both digital and analog in order to enhance the IBOC transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 4, the admitted prior art disclose an efficient system for combining signals from a digital transmitter (6) to produce a combined HD radio signal (via hybrid combiner 4), comprising the steps of:

a Linear Solid State IBOC transmitter (6) with digital carriers output (IBOC output);

a separate analog transmitter (2) with an analog output (analog output from 2 for analog input to 4);

means for combining (4) for combining the digital carriers output of Linear Solid State IBOC transmitter (6) with the analog output of the analog transmitter (2).

The admitted prior art does not disclose the Linear Solid State IBOC transmitter that outputs both digital and analog carriers, and means for combining the digital and analog carriers output of Linear Solid State IBOC transmitter with the analog output of the separate analog transmitter.

Kroeger et al disclose the Linear Solid State IBOC transmitter (102, 106, 108, 120) outputs both digital (from 112) and analog (from 102) carriers output (output 122 via 120); and means for combining (via 124) the digital and analog carriers output of Linear Solid State IBOC transmitter (122) with the analog output (output 110 via 106, 108) of the separate analog transmitter (col 5, lines 55 – col 6, line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the IBOC transmitter of the admitted prior art be both digital and analog in order to enhance the IBOC transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 7, the admitted prior art disclose a method of combining signals from transmitters (2, 6; fig. 1) to produce a combined high definition radio signal, comprising the steps of:

providing a first transmitter (6) with digital carrier output (IBOC output);

providing a second transmitter (2) with an analog output (analog output from 2 for analog input to 4);

combining the digital carrier output of the first transmitter (6) through a combiner (4) with the analog output of the second transmitter (2) to generate an HD radio signal.

The admitted prior art does not disclose providing the first transmitter with both digital and analog carriers output and combining the digital and analog carriers output of the first transmitter through a combiner with the analog output of the second transmitter to generate an HD radio signal.

Kroeger et al disclose providing the first transmitter (102, 106, 108, 120) with both digital (from 112) and analog (from 102) carriers output (output 122 via 120); and combining (via 124) the digital and analog carriers output of the first transmitter (122) through a combiner (124) with the analog output (output 110 via 106, 108) of the second transmitter to generate an HD radio signal (col 5, line 55 – col 6, line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first transmitter of the admitted prior art be both digital and analog in order to enhance the first transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 10, the admitted prior art disclose a system for combining signals from a digital transmitter (6; fig. 1) and an analog transmitter (2) to produce a combined high definition radio signal, comprising the steps of:

Art Unit: 2618

a first transmitter (6) that outputs digital carrier (IBOC output); a second transmitter (2) with an analog output (analog output from 2 for analog input to 4); a combiner (4) for combining the digital carriers output of the first transmitter (6) with the analog output of the second transmitter (2) to generate an HD radio signal.

The admitted prior art does not disclose the first transmitter outputs both digital and analog carriers; and the combiner for combining the digital and analog carriers output of the first transmitter with the output of the second transmitter to generate an HD radio signal (page 2, lines 1-20).

Kroeger et al disclose the first transmitter (102, 106, 108, 120) outputs both digital (from 112) and analog (from 102) carriers (via output 122 via 120); and a combiner (124) for combining the digital and analog carriers output of the first transmitter (122) with the analog output (output 110 via 106, 108) of the second transmitter (col 5, line 55 – col 6, line 7) to generate an HD radio signal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first transmitter of the admitted prior art be both digital and analog in order to enhance the first transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 13, the admitted prior art disclose a method of converting a radio station from analog transmission to digital transmission, comprising the steps of:

providing a first transmitter (6) with digital carrier output (IBOC output) (page 2, lines 1-20; fig. 1);

providing a second transmitter (2) with an analog output (analog output from 2 for analog input to 4) (page 2, lines 1-20);

combining the digital carrier output of the first transmitter (6) through a combiner (4) with the analog output of the second transmitter (2) to generate an HD radio signal.

The admitted prior art does not disclose providing the first transmitter with both digital and analog carriers output and combining the digital and analog carriers output of the first transmitter through a combiner with the analog output of the second transmitter to generate an HD radio signal (page 2, lines 1-20).

Kroeger et al disclose providing the first transmitter (102, 106, 108, 120) with both digital (from 112) and analog (from 102) carriers output (output 122 via 120); and combining (via 124) the digital and analog carriers output of the first transmitter (122) through a combiner (124) with the analog output (output 110 via 106, 108) of the second transmitter (col 5, line 55 – col 6, line 7) to generate an HD radio signal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first transmitter of the admitted prior art be both digital and analog in order to enhance the first transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 16, the admitted prior art disclose a method of generating efficient high definition (HD) radio signals for radio stations (fig. 1) with transmission power output (TPO) between approximately 5,000 watts and 35,000 watts while energy costs are lowered (page 2, lines 10-19), comprising the steps of:

providing a first transmitter (6) with digital carrier output (IBOC output for IBOC input to hybrid 4); providing a second transmitter (2) with an analog output (analog output from 2 for analog input to 4); combining the first transmitter (6) through a combiner (4) with the second transmitter (2) from either the first transmitter (6) or the second transmitter (2) to generate an HD radio signal, wherein energy costs are lowered over existing methods of generating HD radio signals (page 2, lines 1-20).

The admitted prior art does not disclose providing the first transmitter with both digital and analog carriers output and combining the digital and analog carriers output of the first transmitter through a combiner with the second transmitter to generate an HD radio signal. Kroeger et al disclose providing the first transmitter (102, 106, 108, 120) with both digital (from 112) and analog (from 102) carriers output (output 122 via 120); and combining (via 124) the digital and analog carriers output of the first transmitter (122) through a combiner (124) with the analog output (output 110 via 106, 108) of the second transmitter (col 5, line 55 – col 6, line 7) to generate an HD radio signal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first transmitter of the admitted prior art be both digital and analog in order to enhance the first transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claim 26, the admitted prior art disclose a method of efficiently converting an analog radio station having an existing analog transmitter (2) having an analog output to a HD (High Definition) digital radio station, comprising the steps of:

providing a separate transmitter (6) that generate digital output (IBOC output for IBOC input to hybrid combiner 4) (page 2, lines 1-20; fig. 1);

combining (via hybrid combiner 4) the digital output (IBOC output) of the separate transmitter (6) with the analog output (analog output from 2 for analog input to 4) of the existing analog transmitter (page 2, lines 1-20);

generating a combined output (output at combiner 4) that is equivalent to approximately 100% of both wattage outputs of the existing analog transmitter (2) and the separate transmitter (6) in order to generate efficient HD radio signals (page 2, lines 1-20). The admitted prior art does not disclose combining the analog and digital outputs of the separate transmitter with the analog output of the existing analog transmitter.

Kroeger et al disclose combining (via 124) the analog (from 102) and digital (from 112) outputs (analog and digital output 122 via 120) of the separate transmitter (6) with the analog output (output 110 via 106, 108) of the existing analog transmitter (2) (col 5, line 55 – col 6, line 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the first transmitter of the admitted prior art be both digital and analog in order to enhance the first transmitter with digital information outputted therefrom to enable digital audio broadcast signals to be broadcasted as well as analog signals as suggested by Kroeger et al.

Regarding claims 2, 8, 14, 17 and claims 5 & 11, the admitted prior art and Kroeger et al disclose the method of claims 1, 7, 13, 16 and system of claims 4 & 10 respectively, wherein the admitted prior art disclose the combiner (4) includes the step of providing a 10 dB Hybrid combiner (4). The admitted prior art does not specifically disclose a 3dB

Art Unit: 2618

combiner. However, it is notoriously old and well known in the art to have a 3 dB combiner. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the combiner be 3 dB instead of 10dB in order to use less power when combining the signals for power efficiency purposes.

Allowable Subject Matter

6. Claims 3, 6, 9, 12, 15, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the admitted prior art and Kroeger et al disclose the method of claim 1, wherein the step of providing the separate analog transmitter includes: feeding the output of an IBOC exciter (32) to the low level combiner (36) to the Linear Solid State IBOC transmitter (40; fig. 2); wherein the admitted prior art and Kroeger et al fail to disclose:

splitting an output from an analog exciter to an RF circulator and to a phase compensation circuit; and

feeding the output of the phase compensation circuit to the separate analog transmitter; and

combining the output of the RF circulator to an output from an IBOC exciter with a low level combiner; and

feeding the output of the low level combiner to the Linear Solid State IBOC transmitter.

Regarding claims 6 and 12, the admitted prior art and Kroeger et al disclose the system and method of claims 4 and 10 respectively, the admitted prior art and Kroeger et al fail to disclose further comprising:

- a splitter for splitting an output from an analog exciter to an RF(radio frequency) circulator and to a phase compensation circuit, and feeding the output of the phase compensation circuit to the separate analog transmitter; and

- a combiner for combining the output of the RF circulator to an output from an IBOC exciter with a low level combiner and feeding the output of the low level combiner to the Linear Solid State IBOC transmitter.

Regarding claims 9, 15, and 18, the admitted prior art and Kroeger et al disclose the method of claims 7, 14, and 16 respectively, wherein the step of providing the separate analog transmitter includes: feeding the output of a low level combiner (36) to the first transmitter (40; fig. 2). The admitted prior art and Kroeger et al fail to disclose the step of providing the separate analog transmitter includes:

- splitting an output from an analog exciter to an RF circulator and to a phase compensation circuit; and

- feeding the output of the phase compensation circuit to the second transmitter;
- and

- combining the output of the RF circulator to an output from an exciter with a low level combiner; and

- feeding the output of the low level combiner to the first transmitter.

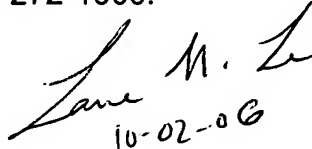
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N. Le whose telephone number is (571) 272-7891. The examiner can normally be reached on M-F 9:30-18:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lana Le


10-02-06
LANA LE
PRIMARY EXAMINER